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TYPE 1 REPORT #1

January 3, 1973

- A. TITLE OF INVESTIGATION: Multispectral Signatures in Relation to  
Ground Control Signatures Using Nested-Sampling  
(E73-10810) MULTISPECTRAL SIGNATURES IN N73-27285  
RELATION TO GROUND CONTROL SIGNATURES
- B. USING NESTED SAMPLING APPROACH Progress Unclas  
Report, 3 Nov. 1972 - 2 Jan. 1973
- C. (Stanford Univ.) 5 p HC \$3.00 CSCL 05B, G3/13, 00810, angular  
and statistical variation in spectral signatures  
for different geological target types; relation,  
integration and correlation of data from ground,  
aircraft, and ERTS radiometric equipment for  
the various target types leading to their  
improved identification from ERTS images.
- D. PRINCIPAL INVESTIGATORS: R.J.P. Lyon (P.I.)  
School of Earth Sciences  
Stanford University  
Stanford, California 94305  
  
A.A. Green (Co-I)  
Department of Applied Earth Sciences  
Stanford University  
Stanford, California 94305  
  
Phone: (415) 321-2300, ext. 4147/2747
- E. TECHNICAL MONITOR: E.W. Crump  
Goddard Space Flight Center  
Greenbelt, Maryland 20771  
Phone: (301) 982-2857
- F. PERIOD: November 3, 1972 - January 2, 1973
- ACTION REQUIRED: None

G. PROBLEMS IMPEDING PROGRESS

1. Initially funding was slow in becoming available at Stanford and little could be attempted during November. Around December 1 the program was commenced at about 2.0 man year level.

2. The early stages were directed by the Co-principal Investigator (Dr. A.A. Green) due to the absence of the Principal Investigator who was on sabbatical leave, doing research in Australia on ERTS-type spectral measurements on terrain.

3. Considerable rain and cloudy days on ERTS overpass times precluded the collection of field data.

<u>ID</u>	<u>DATE</u>	<u>CLOUD</u>
1111-18181	11/11/72	60%
1129-18181	11/29/72	20%
1147-18181	12/17/72	90%

## H. DISCUSSION OF ACCOMPLISHMENTS DURING PERIOD

1. Physical integration of the digital data system was commenced for both the ERTS radiometers (Exotech, EGTR Model 100) and for the ISCO spectroradiometers. The system is built using a METRODATA DL620A analog-digital converter capable of sampling 18 analog channels (+2 times) at a rate of 48 samples per second. We now sample the 4 channel, EGTR units four times in a second, making up the rest with a reading of incident irradiance using a Sol-R-meter in Channel 20 and an identification (ID) in Channel 19. The metrodata control unit can be run continuously (necessary for data from mobile systems) or intermittently at pre-arranged intervals of 10 secs, 1 minute, 10 minutes, or 1-hour.

2. The two EXOTECH radiometers (EGTR units) were tested and some preliminary data taken.

3. A catalog system was evolved for the ERTS MSS imagery enabling the positive transparencies to be mounted in Polaroid plastic frames for viewing under the binocular microscope.

4. Site selection was commenced so that areas adjacent to Stanford campus could be readily accessed by vehicle. A concept was developed for selecting areas of standardized reflectance (both low- and high-reflectance values) to be used for calibration over a 12-month period. Low reflectance generally characterizes water bodies, while high reflectance occurs on bodies of white sand, limestone in quarries, and on playa lakes.

## I. SIGNIFICANT RESULTS

(Relationship to applications or operational problems, including estimates of the cost benefits of any significant results)

NONE

J. PLANNING FOR NEXT PERIOD

1. Development of software to read the EGTR/ISCO data tapes directly into the IBM 360/67 computer.

K. PUBLISHED MATERIALS

None

L. RECOMMENDATIONS FOR CHANGES IN OPERATIONS ADDITIONAL EFFORT OR CORRELATION OF EFFORT/RESULTS OF ERTS

None

M. CHANGES IN STANDING ORDER FORMS

None

N. DATA REQUEST FORMS SUBMITTED

None

O. ERTS IMAGES ACQUIRED OVER STANFORD TEST AREA

See over

ERTS IMAGES ACQUIRED OVER STANFORD UNIVERSITY TEST AREA  
FROM THE STANDARD CATALOG FOR US 07/24/72 TO 5/31/73

OBSERVATION ID	MICROFILM ROLL NO.	DATE ACQUIRED	CLOUD COVER	ORBIT NUMBER	PRINCIPAL POINT (C) OF IMAGE	SUN ELEV	SUN AZIM	PRODUCTS MADE	PRODUCTS RECD. AT STANFORD
					LAT      LONG			M S B7 P M9	M S B7 P M9
1021-18172	10001/1226	08/13/72	0	293	3724N    12145W	55.8	124.5	x x x x x	- - - - -
1039-18172	10002/0074	08/31/72	0	544	3725N    12150W	51.9	132.5	x x x x x	- - - - -
1057-18172	10002/0598	09/18/72	20	795	3721N    12149W	47.1	140.2	x x x x x	- - - - -
1075-18173	10004/0236	10/06/72	0	1046	3729N    12144W	41.6	146.8	x x x x x	4 8 - 1 4
1093-	NO FRAMES TAKEN								
1111-18181	10004/1570	11/11/72	60	1548	3715N    12153W	30.9	153.9	x x      x x	4 8 - 2 -
1129-18181	10005/0498	11/29/72	20	1799	3725N    12150W	26.7	154.6	x x      x x	4 8 - 2 -
1147-18181	10006/0333	12/17/72	90	2050	3718N    12151W	24.5	153.4	x x      x x	- - - - -